

# Northern Pacific Railway

## NEW TRAIN SERVICE

EFFECTIVE MAY 23, NINETEEN HUNDRED AND NINE

Placing Missoula in closer touch than ever with the Great East on the one hand and the Pacific Northwest on the other.

### FOUR DAILY ELECTRIC LIGHTED TRANSCONTINENTAL TRAINS

Affording through service between Chicago, St. Paul, Minneapolis, St. Louis, St. Joseph, on the east, and Spokane, Portland, Tacoma, Seattle, Puget Sound on the west.

The Scenic Highway Through the  
**LAND OF FORTUNE**



The Pioneer Line Through the  
**Great NORTHWEST**

IT HAS BEEN SERVING ITS TERRITORY FOR TWENTY-SIX YEARS

W. H. MERRIAM, Division Freight and Passenger Agent, Butte.

C. W. MERRILLIES, Traveling Freight and Passenger Agent, Helena.

### EXPANDING A GREAT RAILWAY TO MEET INCREASED DEMANDS

The astounding increase of its traffic between Missoula and Garrison, three years ago led the Northern Pacific to begin preparations for double-tracking its line through Hell Gate canyon, the new plans embracing extensive line changes and grade revisions. The advent of the Milwaukee line undoubtedly hastened the work; anyway, it was undertaken on a broad scale; it amounted practically to the construction of an entirely new line from Missoula to Garrison. The work was rendered the more difficult on account of the fact that much of the new work either crossed or overlapped the old line and the operation of this had to be considered. The problem was met in splendid shape; the new line is now, after more than two years of actual construction work, ready for use. The need of the double track is shown in the figures of the operating department, which show that there are, on an average, more passing over the single track between Missoula and Garrison than are run on the New York Central through Syracuse, one of the busiest divisions on that great system, with four tracks. It is this sort of railroading that makes the western operating departments the most efficient in the railway world. If the Northern Pacific would furnish the details of its operation of the district between Missoula and Garrison for the past two years, it would astonish the railway people who have four tracks at their command and it would make apparent the need which has existed for the double track. The work between Missoula and Garrison, on the east and between Missoula and Paradise on the west has given the Northern Pacific a river grade from Butte to Spokane with a double track all the way to Paradise.



LEAVING MISSOULA STATION, EASTBOUND

To reduce railroad mileage nearly five miles in a total distance of less than 75 miles by straightening curves and reducing mountain grades, is a feat which is more of an accomplishment than the general public is apt to give a railroad company credit for. The traveling public rarely appreciates the amount of skill and labor attached to such a task as the Northern Pacific Railroad company set itself to when it was first determined to make an air line of the district following the course of the Hell Gate river from Garrison westward to Missoula. As a matter of fact the railroad was

originally surveyed to follow along the bank of the Hell Gate river for the simple reason that to reduce hills, cut through mountains to fill in deep gullies and to bridge the turbulent river in innumerable places in order to secure a straight line, seemed at the time of the first survey, to be a thing altogether impracticable and well-nigh impossible. Not only that, the accomplishment of such a feat appeared to be a useless expense because there was no competition in the field in the earlier days, and none appeared then upon the horizon of the commercial advancement of the western country. In other words the territory belonged solely to the Northern Pacific and there appeared to be no reason to fear encroachment by the invading rivals for transcontinental business.

#### History.

The original line was built during the year of 1882, the first survey having been made about two years earlier. Those were not only early days in the settlement of the west, they were also pioneer days in the development of the art of engineering through mountains, consequently the easier route was selected, regardless of the devious windings incident to the following of a mountain river. It has been said of the crossroads of the Northern Pacific line between Garrison and Missoula that the company was compelled to discard its old cotton flags which marked the rear end of a passenger train or the caboose on a freight train because the curves in the road were so sharp the cotton flags snapped like the cord of a whip and had to be replaced at such a vision terminal. Those flags have been replaced by markers of metal. This story, while doubtless a product of the imagination, serves to illustrate the nature of the track east of Missoula before the latter-day corps of engineers got at it and, regardless of the obstacles ahead, have driven a new double track line from Garrison to Missoula and in so doing have not only reduced the distance nearly five miles but have given the Northern Pacific a road-bed which is nearly the apex of the art of railroad building.

Not only has the Northern Pacific straightened this piece of its Montana line, it has gone a step farther in its efforts to minimize time on the division by constructing twin tracks over the entire 68 1-2 miles. By this means long and expensive waits for opposing trains are eliminated and the time limit for the road-bed can be maintained to the end of the district. The saving of the five miles of distance is a mere bagatelle when compared to the vast saving in time permitted by the double track system.

#### Remedying Defects.

Then, too, the continuous following of the river bank has proved more or

less disastrous in the past on account of high water which has overflowed the tracks and ruined mile after mile of the company's roadbed. Especially was this true during the spring and early summer of 1908, when high water washed away millions of dollars' worth of the Northern Pacific company's property. The grade, which for years had withstood the ravages of the swiftly racing current of the Hell Gate river, failed utterly to meet the requirements when a rainfall of more than usual proportions swelled the river beyond its usual limits. It was a crucial period for the Northern Pacific railroad and its results were disastrous, but it showed most effectually where the weak portion of the line was and in what manner it could best be rebuilt. The great flood of last year had the effect of compelling the company to build its grade higher and steeper than was at first intended, all of which must eventually prove of infinite benefit to the company in future storm and flood periods.

In the construction of the new tracks the railroad company has fortified against flood-tides of the coming seasons and wherever the roadbed is constructed in proximity to the river a strengthening force of heavy rock ballast has been entered into the building of the road. To secure material for this reinforcement the contractors have dynamited rock hills and reduced them to the level of the plains. Millions and millions of tons of this material have been used along the water front of the grade, forming perfect protection from erosion. This protection obtains not only in flood times, but is equally effective as a support to the grade at all times and in all conditions of weather.

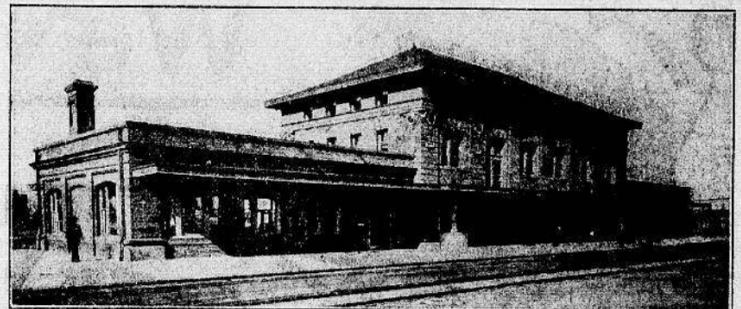
#### Through the Hill.

At Garrison the old line of the Northern Pacific railroad was constructed along the bank of the Hell Gate river and around a sharp hill and by tunneling the mountain and bridging the stream the line in Garrison and the immediate vicinity has been shortened at least a half mile. To meet with and conform to this line change the whole yard and station at Garrison has been remodeled. At that junction with the Chicago, Milwaukee & Puget Sound railway and its own Butte branch the Northern Pacific has erected a new depot, new coal dock and entirely reconstructed its waterworks system. The yardage has been increased to a great extent and the whole yard thrown over to the north a distance of over one-quarter of a mile. The new tunnel, which is located a short distance east of the station, is 2,000 feet in length fully concrete lined and built with double tracks. One-half mile west of the station and about a quarter of a mile west of the west portal of the tunnel the big Garrison bridge has been thrown across the river. This bridge consistent with the plan of permanent building of the Northern Pacific road, is a full steel structure supported on concrete piers and abutments. There are four steel spans of 80 feet each. The changing of the line at Garrison and immediately west of that place,

cuts out the old bridge No. 87, the wooden structure which was swept away during the floods of last spring and where F. E. Willard, then superintendent of the Rocky Mountain division, was caught by the flood tide and held for a period of nearly 10 days. The Garrison bridge is approached by a piling trestle at each end. This will be filled immediately. Out of Garrison the new line follows the south bank of the river hugging closely to the shore of the turbulent stream to bridge No. 29, one mile west of Gold creek where the river is crossed. At Big Bend the company uses its old grade which has been re-graded and rebuilt. This grade line is followed to bridge 48. The "dumpp" has been built up several feet and assumes an extraordinarily substantial appearance on account of the iron use the contractors have made of rock and riprapping. Some distance east of the new bridge the Hell Gate river makes a wide detour to the northward and just before the bridge

line constructed at least 15,000 feet from the former site. From Hell Gate to Bearmouth five big curves have been eliminated and the new line crossing the old one in five separate and distinct places. The traveling distance thus reduced is nearly a mile. A great deal of work has been accomplished in this vicinity, and to facilitate the work of the contractor dinky dump cars were installed on standard gauge flat cars after the narrow tracks were taken up. This was done so that the dump cars might still be kept in the service when the ballasting was started. About two miles west of Drummond station a large rock hill has been reduced to a level with the grade and the material thus secured used in the building of one of the most substantial pieces of track the Northern Pacific has got on its whole system. A short distance east of Bearmouth the grade recrosses the river, the line continuing to a huge bend in the stream for a considerable dis-

distance where the line has been built through a deep rock cut. At Haskell the Northern Pacific and the Chicago, Milwaukee & Puget Sound railways enter on the same grade which is built for three tracks the new railroad line keeping to the south. This mode of operation is continued to a point a short distance east of Nimrod. At Harvey Creek, a siding between Bearmouth and Blakeley, the site of the old grade has, for the most part, been followed. The steep hill which formerly existed at this point has been reduced to a level and a curve of some importance has been cut through. Between Blakeley and Nimrod the bridge 139 has been thrown across the river and by the combination of crossing the stream and tunneling the big hill at Nimrod together with cutting through another big hill a reduction of mileage amounting to nearly a mile has been accomplished. Bridge 139 is another combination of steel and concrete,



NORTHERN PACIFIC STATION, MISSOULA

is reached it strikes back at a sharp angle and approaches the track. Bridge No. 98 has two 80-foot steel spans.

#### Short Cuts.

For two miles before entering Haskell the grade of the road enters a deep rock cut which later develops into a gravel cut from which much of the grade constructing material has been taken for the "dumpp" in the vicinity. The tracks of the old Haskell line have been removed and the station house is no longer in use. Where once a steep hill existed over which trains were forced to climb wearily, a cut of 10 feet now forms a part of the railroad line. From Haskell to Drummond little change has been made except to rebuild the grade and to strengthen it in former weak places. The line through the district from Haskell to Hell Gate, about 12 miles is one of the straightest on the line between Garrison and Missoula, the course of the river being followed only where it was a straight one. At Hell Gate the changes have been many and important. The old station has been cut out entirely and the

two large steel spans having been used in its construction. In the vicinity of Nimrod an extraordinary amount of extra construction work has been accomplished which did not appear in the original plans of the railroad company. It was at this place that the flood tides of the spring and summer of last year wrought most extensive havoc. Here a mile after mile of the old grade was entirely swept away and the new grade, only in the initial stage of construction, was completely removed. Bridges, culverts and small trestles were carried down the stream and were never recovered. The railroad company faced a long period of transportation incapacity which was reduced only by the fact that the Puget Sound people were able to lay rails on its own right-of-way. This was not accomplished for some months after and only then after the company had performed some extraordinary feats of engineering accompanied by marvelous construction accomplishments. Instead of following the bank of the ravaging Hell

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